Economic Dispatch in the Northeastern Markets: Achievements and Market Needs

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What is Economic Dispatch?

- *Common sense:* Don't run a more expensive power plant if a cheaper one can provide the same services
- *A work in progress* that continues to need refinement and full implementation
- *Foundation for a good market:* SCUC/SCED provide efficiency-enhancing LMPs intended to charge the marginal cost of serving load while meeting reliability constraints

Economic Dispatch Based Markets – Initial Expectations

1. Minimize cost of using existing power plants to convert variable inputs to power
2. Create a transparent and efficient energy market
3. Send the “right” price signals for continued investment in new and existing resources and transmission

How has SCED done – Variable cost minimization?

Yes, in the short run:

- When all generation has comparable transmission rights, SCED avoids using a higher cost resource to produce energy when a lower cost resource can provide the same services.
- Economic dispatch in this regard makes good sense, but it is not yet a market.
- Market-based incentives hold the key to the most substantial consumer savings, as identified by recent studies (CERA -- $43 B in east; GED -- $15 B in east)
  - Cost minimization
  - Efficient utilization of resources and infrastructure
  - Risk management.

Efficient energy markets in the Northeast?

Effects have been positive, but three major areas have needed improvement:

1. Exclusion of critical security constraints (for example, reserves for contingencies) from the market pricing software has lead to the supply of these services through “out of merit” dispatch, suppressing market prices and increasing un-hedgeable “uplift” charges.
2. Distinguishing competitive scarcity pricing from the abuse of market power has proven contentious and difficult.
3. Even the “right” price signals must be allocated in a manner that creates appropriate market incentives.
   - Uplift – if it cannot be avoided – should not be allocated to those who engage in efficient market activities (virtual trading).
   - The market costs of reliability should be allocated to those who can hedge the risk by contracting for the resources needed for reliability;

Price signals for continued investment?

No – experience and theory both indicate that:

- An efficient mix of resources *all* need additional revenue, in addition to variable cost-based energy margins, to compete with other investment opportunities.
- Additional revenue may be needed to attract and sustain investment in constrained and high cost areas.
- Energy-only markets fail to produce this level of extra earnings without periodic shortages and extremely high price spikes.
- Increasing consensus that some form of capacity market refinement or reform is urgently needed.

Economic Dispatch -- Lessons learned

- Include all constraints in SCUC/SCED pricing algorithms and co-optimized markets for energy and ancillary services.
- Integrate with a capacity or resource adequacy market designed to produce stable, competitive levels of investment and prices.
- Allocate costs in a manner that supports key market functions and that creates incentives for market participants to actively hedge their risks.